

Remarks/Arguments

Claims 1-30 and 36-38 are now pending in this application. In the March 31, 2008 Office Action, Claims 1-2, 4-6, 8, 14-15, 18-19, and 29-30 were rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,574,794 to Sarraf (hereinafter "*Sarraf1*"). Claim 3 was rejected under 35 U.S.C. 103(a) as being unpatentable over *Sarraf1* in view of U.S. Patent No. 5,870,406 to Ramesh et al. (hereinafter "*Ramesh*"). Claim 9 was rejected under 35 U.S.C. 103(a) as being unpatentable over *Sarraf1* in view of U.S. Patent No. 6,157,812 to Sarraf (hereinafter "*Sarraf2*"). Claims 10-13, 16-17, 20 and 38 were rejected under 35 U.S.C. 103(a) as being unpatentable over *Sarraf1* in view of U.S. Patent Application Publication No. 2001/0012277 to Campanella (hereinafter "*Campanella*"). Claims 21-26 were rejected under 35 U.S.C. 103(a) as being unpatentable over *Sarraf1* in view of Campanella, further in view of U.S. Patent No. 6,408,164 to Lazaris-Brunner et al. (hereinafter "*Lazaris*"). Claim 7 was objected to as being dependent upon a rejected base claim, but indicated as allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 27-28 and 37 were allowed.

By this amendment, claims 2 and 14 have been amended. Following entry of this amendment, claims 1-30 and 36-38 will be pending in the present application. For the reasons set forth below, the applicants respectfully request reconsideration and immediate allowance of this application.

Allowable Subject Matter

The applicants gratefully acknowledge the allowance of claims 27, 28, and 37.

Claim 1

In response to the arguments presented in the Amendment filed on January 29, 2008, the Office Action's Response to Arguments states that "the Examiner relies on *Sarraf1* at col. 5, lines 54-65, which discloses 'UFSM 15 selects the active sub-bands from each received IF signal and passes them to one of m B-type input-ports 17 (for broadcast-traffic) of DRSP 60 for further processing. DRSP 60 demodulates the incoming carriers, recovers the individual service data-

streams and multiplexes them into N downlink broadcast channels 70 (BC#I-N).” The applicants respectfully submit that reliance on this section is misplaced.

Claim 1 recites, *inter alia*, “a digital channelizer configured to divide the sub-band spectrum into a plurality of frequency slices.” Nothing in the *Sarrafl* at col. 5, lines 54-65 discloses dividing the sub-bands into slices. Indeed, *Sarrafl* at col. 5, lines 54-65 merely discloses that sub-bands are passed in their entirety into ports, and passing sub-bands into ports for further processing is patentably distinguishable from a digital channelizer that divides a sub-band spectrum into frequency slices.

With further regards to the digital channelizer and the digital switch matrix recited in claim 1, the Office Action cites *Sarrafl* at col. 6, lines 4-9. (Office Action at page. 3). However, *Sarrafl* at col. 6, lines 4-9 expressly teaches that “[t]o provide total service-area coverage for S&C transmissions in the uplink direction, the UFSM 15 separates the sub-band allocated for such S&C traffic from each beam's IF signal and delivers them to the S-type input-ports 16 of DRSP 60.” S&C refers to out-of-band signaling traffic that is not part of the underlying IF signal. *Sarrafl* describes separating the out-of-band control from the beam's IF signal and then providing these control signals to other destinations. That is, *Sarrafl* describes the extraction and routing of control data that is transmitted separately from the underlying IF signal.

Sarrafl, however, does not describe dividing the sub-band “into a plurality of frequency slices” and “rout[ing] each of the plurality of frequency slices to at least one of a plurality of receiving ports,” as recited in claim 1. At best, *Sarrafl* discloses that “out-of-band” signaling traffic can be separated from the IF signal. Indeed, this out-of-band signaling traffic would not be routed within the satellite payload or re-combined with other frequency slices to “form a plurality of output sub-bands for transmission on an output beam of the communications satellite,” also as recited in claim 1.

With regards to the digital combiner recited in claim 1, the Office Action relies on *Sarrafl* at col. 5, lines 44-64. However, nothing in the cited section discloses “re-assembl[ing] the plurality of frequency slices.” Rather, the cited section discloses generally a satellite payload without any reference to reassembling frequency slices.

In light of the above, *Sarrafl* does not teach, suggest, or describe each and every element of independent claim 1. The applicants therefore submit that this claim is in condition for immediate allowance. The applicants further submit that claims 3-6 and 8-13 are also patentable

because they contain recitations not taught by *Sarrafl* and because these claims depend from allowable independent claims. Further, with regards to claim 3, *Ramesh*, in combination with *Sarrafl*, does not cure the deficiencies described above with respect to *Sarrafl*. With regards to claim 9, *Sarrafl2*, in combination with *Sarrafl*, does not cure the deficiencies described above with respect to *Sarrafl*. With regards to claims 10-13, *Campanella*, in combination with *Sarrafl*, does not cure the deficiencies described above with respect to *Sarrafl*. Accordingly, the applicants submit that claims 1, 3-6, and 8-13 are in condition for immediate allowance.

Claim 2

Regarding claim 2, the Office Action relies on *Sarrafl* at col. 5, lines 49-50, col. 4, lines 60-65, and col. 4, lines 1-19. It is respectfully submitted that nothing in the recited portions of *Sarrafl* discloses that the DRSP 60 is adapted to “demodulate each of the plurality of frequency slices to extract a digital bitstream therefrom, to digitally process the bitstream, and to remodulate the bitstream after processing,” as recited in claim 2. Rather, the recited portions describe a digital regenerative signal processor (DRSP) 60 and EST 30 and BST 20 terminals, all of which are patentably distinguishable from the recitations of claim 2.

In light of the above, *Sarrafl* does not teach, suggest, or describe each and every element of dependent claim 2. Further, claim 2 depends from an allowable independent claim 1. Accordingly, the applicants submit that claim 2 is in condition for immediate allowance.

Claim 14

Claim 14 recites, *inter alia*, “a digital channelizer configured to divide each of the sub-band spectra into a plurality of data packets the sub-band spectra being in an intermediate frequency (IF).” As discussed in greater above with respect to claim 1, *Sarrafl* merely discloses separating out-of-band signaling data (i.e., S&C traffic) from the underlying IF signal. Nothing in *Sarrafl* discloses dividing sub-band spectra in IF into a plurality of data packets.

Claim 14 further recites “an embeddable digital regeneration module in communication with the digital switch matrix, wherein the digital regeneration module is configured to demodulate at least a portion of the plurality of data packets to extract a digital bitstream therefrom, to digitally process the bitstream, and to remodulate the bitstream after processing.”

Because nothing in *Sarrafl* discloses dividing sub-band spectra in IF into a plurality of data packets, it follows that nothing in *Sarrafl* discloses demodulating those data packages to extra a digital bitstream therefrom.

In light of the above, *Sarrafl* does not teach, suggest, or describe each and every element of independent claim 14. Accordingly, the applicants submit that claim 14 is in condition for immediate allowance.

Claim 15

The Office Action relies on the same arguments provided for claim 1 to also reject claim 15. As such, the deficiencies in these arguments that were previously discussed with respect to claim 1 apply, at least in part, to claim 15 as well. In particular, nothing in *Sarrafl* discloses “digitally dividing the sub-band spectrum into a plurality of frequency slices,” “routing each of the plurality of frequency slices to at least one of a plurality of receiving ports,” and” digitally re-assembling the portion of the plurality of frequency slices after processing to thereby form a plurality of output sub-bands for transmission on an output beam of the communications satellite.”

It should be noted that the because the Office Action relies on the same arguments provided for claim 1 to also reject claim 15, the Office Action does not address the specific recitations in claim 15 not found in claim 1. For example, the Office Action does not address “digitally processing at least a portion of the frequency slices,” as recited in claim 15. In any case, nothing in *Sarrafl* discloses dividing sub-band spectrum into a plurality of frequency slices. This is patentably distinguishable from *Serraf1*, which teaches separating S&C traffic from the underlying IF signal. It follows then that nothing in *Sarrafl* discloses “digitally processing at least a portion of the frequency slices.”

In light of the above, *Sarrafl* does not teach, suggest, or describe each and every element of independent claim 15. The applicants therefore submit that this claim is in condition for immediate allowance. The applicants further submit that claims 16-19 are also patentable because they contain recitations not taught by *Sarrafl* and because these claims depend from allowable independent claims. Further, with respect to claims 16-17, *Campanella*, in combination with *Sarrafl*, does not cure the deficiencies described above with respect to

Sarrafl. Accordingly, the applicants submit that claims 15-19 are in condition for immediate allowance.

Claim 20

Claim 20 recites an all-digital payload that includes a digital channelizer, a digital switch matrix, a digital combiner, and a digital to analog (D/A) converter. Nothing in *Sarrafl* or *Campanella*, individually or in combination, teaches or suggests the all-digital payload including a digital channelizer, a digital switch matrix, a digital combiner, and a D/A converter as recited in claim 1. In particular, the deficiencies of *Sarrafl* are discussed above with respect to claim 1, and *Campanella* does not cure these deficiencies.

In light of the above, *Sarrafl* does not teach, suggest, or describe each and every element of independent claim 20. The applicants therefore submit that this claim is in condition for immediate allowance. The applicants further submit that claims 21-26 are also patentable because they contain recitations not taught by *Sarrafl* and because these claims depend from allowable independent claims. Further, with respect to claims 21-26, *Lazaris*, in combination with *Sarrafl*, does not cure the deficiencies described above with respect to *Sarrafl*. Accordingly, the applicants submit that claims 20-26 are in condition for immediate allowance.

Claim 38

The arguments provided above with respect to the rejection of claims 1 and 15 apply, at least in part, to the rejection of claim 38. Accordingly, for at least the reasons discussed above with respect to claims 1 and 15, the applicants submit that claim 38 is in condition for immediate allowance.

Conclusion

In view of the foregoing amendment and remarks, the applicants respectfully submit that all of the pending claims in the present application are in condition for allowance. Reconsideration and reexamination of the application and allowance of the claims at an early date is solicited. If the Examiner has any questions or comments concerning this matter, the Examiner is invited to contact the applicants' undersigned attorney at the number below.

Respectfully submitted,

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